REMARKS

Reconsideration and allowance are respectfully requested.

Claims 1-19 are pending and claims 20-30 have been cancelled.

The present invention involves a seal having an edge held in close proximity to a relatively rotating surface and reinforced by creases extending away from the edge and having perforations adjacent to the seal edge to allow air leakage through the seal. The leaking air provides a lifting force pushing the seal away from the rotating surface and the folds form creases in the seal to reinforce and stiffen the seal to oppose air pressure differentials distorting the seal. The claims have been amended to emphasize these features.

In response to the rejection under HESHMAT (US 5,833,369), it is clear that HESHMAT describes a bearing and not a seal as in the present invention. In addition, HESHMAT does not include an airflow between or around the elements of the bearing as described in amended claim 1 of the present invention nor is there any indication that the edges of 48 and 49 have any sealing function at all whatsoever. Furthermore, the Examiner defines the seal edge of HESHMAT as the edge of 48 that is adjacent to the shaft 20. This "seal edge" does not include any slots as shown in Fig. 3 and is required by amended claim 2 of the present invention. Therefore, both claims 1 and claim 2, and any dependent claim thereon is not anticipated by HESHMAT nor would it be obvious to modify HESHMAT in accordance with the present invention since HESHMAT relates solely to a bearing function.

In response to the rejection under 35 U.S.C. 103(a) as being unpatentable over COMERY (US 2,871,038), COMERY discloses a labyrinth seal which is characteristically rigid or inflexible and therefore air must flow around the labyrinth not deflect it. In the present invention, the seal is designed to be flexible at the edges of the seal to permit a smaller seal gap while still accommodating rotor shaft misalignment. Secondly, leaking air acts as a lifting force, as

mentioned above, which will tend to locate the seal edge away from the rotor shaft while the stiffness of the seal will act to oppose this (page 6 lines 11-14). A skilled person would not look to HESHMAT for guidance to improve the seal in COMERY because firstly, HESHMAT discloses a bearing and not a seal and secondly the principles of operation and desired properties of the two types of elements are very different from one another. Therefore claim 1 is not unpatentable in view of COMERY either alone or in combination with HESHMAT. Claims 9 and 16 are dependent upon claim 1.

In response to the rejection under 35 U.S.C. 103(a) as being unpatentable over TSENG (US 5,568,931) in view of COMERY, TSENG discloses a brush seal whose element 90 is a damper (column 4 lines 36-39) and not a seal. The sealing function of TSENG is performed through a bristle pack 76. Since the element 90 is used for damping purposes only, this rejection is not appropriate.

In response to the rejection under 35 U.S.C. 103(a) as being unpatentable over GRONDAHL (US 6,644,667) in view of COMERY, the slots in GRONDAHL are not similar to the perforations of the present invention. The slots 26 in GRONDAHL are said to extend to the free ends 30 and they diverge to be advantageous where seal members 24 interfere with one another when the seal assembly 10 is mounted (column 5 lines 6-12). The present invention uses perforations to render the seal permeable to airflow and to instigate an air-riding effect (page 9 lines 23-25), and the slots, having a different purpose than that of the perforations, are intended to provide a degree of edge flexibility to the seal for better presentation in proximity to the relatively rotating component (page 10 lines 15-17). Since both the slots and perforations differ from the slots in GRONDAHL, claims 1 and 2 are not unpatentable over GRONDAHL either alone or in view of COMERY.

After careful review of the application, a mistake was noticed with Figure 3. The fold lines 36 and 37 on the second seal element 32 should be angularly in the opposite direction from those on the first and third elements 31 and 33 (Page 7 line 35 to Page 8 line 5). We attach a corrected formal drawing Fig. 3 to illustrate this.

New claims 31-33 have been added to claim the assembly of the seal provided in claim 1.

Having addressed all the points raised in the Office action, it is believed that the application is now entitled to favorable treatment and this is earnestly solicited.

Respectfully submitted,

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